Arjuna JEE 2023

Basics of Mathematics

DPP-05

1. If $P = 5 - |2q - 3|$, then maximum value of P is:

(1) 2 (2) 5

(3) 6 (4) 8

2. Solve: $x^2 - 7|x| - 8 = 0$ then value(s) of x satisfying the equation are

(1) ± 1 (2) ± 8

(3) ± 9 (4) ± 10

3. $(x - 3)^2 + |x - 3| - 11 = 0$ the sum of solutions of equation is

(1) 5 (2) 6

(3) 7 (4) 8

4. Suppose $abc > 0$ and $a + b + c < 0$ and $\frac{|a|}{a} + \frac{|b|}{b} + \frac{|c|}{c} = x$ then value of $x^3 - 6x^2 + 11x - 6$ equals

(1) 0 (2) –24

(3) 12 (4) 10

5. Solve $|3x - 2| = x$

(1) $x = \frac{1}{2}$ or $x = 1$ (2) $x = \frac{1}{2}$ or $x = -1$

(3) $x = 1$ or $x = -1$ (4) $x = 2$ or $x = -2$

6. $\left|x^2 - x - 6\right| = x + 2$

7. Solve $\left|\frac{x-3}{x+1}\right| \le 1$

(1) $x > -1$ (2) $x \le -1$

(3) $x \ge 1$ (4) $x > -1$

8. Solution of $\left|1 + \frac{3}{x}\right| > 2$ is

(1) $x \in (-1, 0) \cup [0, 3)$

(2) $x \in (-1, 0) \cup (0, 3)$

(3) $x \in [-1, 0] \cup [0, 3)$

(4) $x \in (-1, 0) \cup (0, 3]$

9. Values of 'x' satisfying: $7 \le |x| + 4 < 10$

(1) $x \in [-3, 3]$

(2) $x \in [3, 6)$

(3) $x \in (-6, -3] \cup [3, 6)$

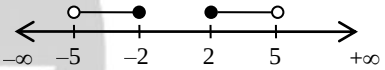
(4) $x \in (-6, -3]$

10. If solution of inequality: $\frac{3 - |x|}{|x| - 5} > 0$ is $x \in (-a, -b) \cup (a, b)$, then $a + b =$

(1) –2 (2) 2

(3) –5 (4) 8

11. Number line:



is correct representation of:

(1) $|x| > 5$ and $|x| \le 2$

(2) $|x| < 5$ and $|x| \ge 2$

(3) $2 < |x| < 5$

(4) $2 < |x| \le 5$

12. If $\frac{x^2 - |x| - 2}{2|x| - x^2 - 2} > 2$ then $x \in$

(1) $(-1, 1)$

(2) $\left(-\frac{2}{3}, -\frac{2}{3}\right)$

(3) $\left(-1, -\frac{2}{3}\right) \cup \left(\frac{2}{3}, 1\right)$

(4) $\left(-\infty, -\frac{2}{3}\right) \cup \left(\frac{2}{3}, \infty\right)$

13. Solution of inequality: $\frac{|x| + 4}{|x| + 3} \ge 0$

(1) $x \in (-\infty, -4] \cup [-3, 3] \cup [4, \infty)$

(2) $x \in (-\infty, -4] \cup (-3, 3) \cup [4, \infty)$

(3) $x \in R$

(4) Not possible

14. Complete set of 'x' satisfying: $|x + 2| > 6$.

(1) $x \in (4, \infty)$

(2) $x \in (-\infty, -8)$

(3) $x \in (-\infty, -8) \cup (4, \infty)$

(4) $x \in (-8, 4)$

Answer Key

1. (2)
2. (2)
3. (2)
4. (2)
5. (1)
6. ($x = -2, 2, 4$)
7. (3)
8. (2)
9. (3)
10. (4)
11. (2)
12. (3)
13. (3)
14. (3)

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